

ITW



PATENT
Customer No. 22,852
Attorney Docket No. 03284.0061

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
)
Yasufumi SHIBATA et al.) Group Art Unit: 4133
)
Application No.: 10/587,718) Examiner: Allison Bourke
)
Filed: June 7, 2007) Confirmation No.: 2256
)
For: CLATHRATE COMPOUNDS,)
THERMOELECTRIC)
CONVERSION ELEMENTS, AND)
METHOD FOR PRODUCING THE)
SAME)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO OFFICE ACTION

In an Office Action dated July 21, 2009, the Examiner required restriction under 35 U.S.C. § 121 and § 372 between the following Groups in this case:

Group I, claims 1-11, drawn to a clathrate compound;

Group II, claims 12-22, drawn to a thermoelectric conversion element; and

Group III, claim 23, drawn to method for producing a thermoelectric conversion element.

Further, the Examiner required an election of one of the following species:

Species A, wherein the clathrate compound is $\text{Ba}_8\text{Au}_a\text{Ge}_{46-a}$, $16/3 \leq a \leq 6$

(P9/L13-16);

Species B, wherein the clathrate compound is $\text{Ba}_8\text{Au}_b\text{Ga}_c\text{Ge}_{46-b-c}$, $5 \leq b < 16/3$, $c = 16-3b$ (P9/L23-P10/L1);

Species C, wherein the clathrate compound is $\text{Ba}_8\text{Au}_d\text{Ga}_e\text{Ge}_{46-d-e}$, $0 \leq d < 5$, $e = 16-3d$ (P10/L9-12);

Species D, wherein the clathrate compound is $\text{Ba}_8\text{Au}_f\text{Ga}_{6-f}\text{Ge}_{40}$, $0 < f < 6$ (P10/L19-21);

Species E, wherein the clathrate compound is $\text{Ba}_8\text{Pt}_g\text{Ge}_{46-g}$, $4 < g < 6$ (P11/L6-8);

Species F, wherein the clathrate compound is $\text{Ba}_8\text{Pd}_h\text{Ge}_{46-h}$, $5 < h < 6$ (P11/L17-19);

Species G, wherein the clathrate compound is $\text{Ba}_8\text{Pd}_i\text{Ga}_j\text{Ge}_{46-i-j}$, $0 \leq i \leq 4$ (P12/L3-5);

Species H, wherein the clathrate compound is $\text{Ba}_8\text{A}_k\text{Ga}_l\text{Si}_{46-k-l}$, $0 \leq k \leq 4$ (P12/L18-20);

Species I, wherein the clathrate compound is $\text{Ba}_8\text{E}_m\text{Ga}_{6-m}\text{Ge}_{40}$, $5 < m < 6$ (P13/L9-11);

Species J, wherein the clathrate compound is $\text{Ba}_8\text{G}_n\text{Ga}_{6-n}\text{Ge}_{40}$, $0 < n \leq 5$ (P13/L20-22); and

Species K, wherein the clathrate compound is $\text{Ba}_8\text{J}_o\text{Ga}_p\text{Ge}_{46-o-p}$, $0 < o < 16/3$, $p = 16-3o$ (P14/L10-12).

Applicants provisionally elect to prosecute Group I, claims 1-11, drawn to a clathrate compound, and elect Species D, wherein the clathrate compound is $\text{Ba}_8\text{Au}_f\text{Ga}_{6-f}\text{Ge}_{40}$, $0 < f < 6$ (P10/L19-21). At least claims 4 and 15 (and, e.g., claim 23 belonging to Group III) are readable on the elected species.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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GARRETT & DUNNER, L.L.P.

Dated: August 18, 2009

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